

Docket No.: 0033-0892P
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Minehiro KONYA et al.

Application No.: 10/611,871

Confirmation No.: 004164

Filed: July 3, 2003

Art Unit: 2628

For: MOBILE EQUIPMENT WITH THREE
DIMENSIONAL DISPLAY FUNCTION

Examiner: D. F. Hajnik

REPLACEMENT SECTION FOR APPEAL BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This replacement section is filed within one month of the Notification of Non-Compliant Appeal Brief dated June 7, 2007. This replacement section corrects the timely filed Appeal Brief filed April 26, 2007 and constitutes a replacement for the summary of the claimed subject matter section.

This replacement section contains items under the following headings as required by 37 C.F.R. § 41.37 and M.P.E.P. § 1206.03:

V. Summary of Claimed Subject Matter

V. SUMMARY OF CLAIMED SUBJECT MATTER

Claim 7

Embodiments of the present invention covered by claim 7 (e.g., fourth embodiment; present specification at pages 13-15) are directed to mobile equipment (e.g., a mobile phone; Figs. 1, 2A, 2B) comprising:

a single pickup device (e.g., camera 206) picking up an image of a subject;

a parallax information portion determining parallax information of said subject (e.g., processor 105: step 406, “obtains an angle α formed by a line extending between the subject’s face and one eye assumed at the position of the camera and a line extending between the subject’s face and the other eye assumed at the position of the camera”; see Fig. 6) based on a distance between human eyes (specification at page 10, lines 10-16);

a three dimensional image creation portion (e.g., processor 105: step 407, “imparts to three dimensional data the parallax information corresponding to angle α ” to create a 3D image including an image for the right eye and that for the left eye; specification at page 10, lines 17-25) creating a three dimensional image by applying said parallax information to said image; and

a display unit displaying said three dimensional image (e.g., main screen 203; step S408; specification at page 10, lines 26-28),

wherein said three dimensional image creation portion cuts a human face out of said image picked up (e.g., processor 105: step 404; Fig. 7A; “the user uses a selection frame 701 displayed on main screen 203 to designate in a 2D image of a human face ...”; or, “using a pen” tracing and designating a subject to the cut out), to obtain a face image and provides said face image with said parallax information. (specification at page 13, lines 14-30).

Claim 10

Embodiments of the present invention covered by claim 10 are directed to a mobile equipment comprising:

a single pickup device (e.g., camera 206) picking up an image of a subject;

a parallax information portion determining parallax information of said subject (e.g., processor 105: step 406, “obtains an angle α formed by a line extending between the subject’s face and one eye assumed at the position of the camera and a line extending between the subject’s face and the other eye assumed at the position of the camera”; see Fig. 6) based on a distance between human eyes (specification at page 10, lines 10-16);

a three dimensional image creation portion creating a three dimensional image by applying said parallax information to said image (e.g., processor 105: step 407, “imparts to three dimensional data the parallax information corresponding to angle α ” to create a 3D image including an image for the right eye and that for the left eye; specification at page 10, lines 17-25); and

a display unit displaying said three dimensional image (e.g., main screen 203; step S408; specification at page 10, lines 26-28),

wherein said three dimensional image creation portion selects a particular subject from said image picked up, to obtain an image of the subject and provides said image of the subject and an image included in said image picked up other than said particular subject with different parallax information (e.g., frame 701 is used to select a subject to be seen forward; specification at page 14, lines 7-13), respectively.

Claim 13

Embodiments of the present invention covered by claim 13 are directed to a three dimensional conversion program product stored on a computer readable storage medium causing a computer to execute a three dimensional conversion process (e.g., Fig. 4) comprising the steps of:

inputting a two dimensional image (e.g., step S401; specification at page 7, lines 2-7);

cutting a human face image out of said two dimensional image to obtain a face image (e.g., step 404; Fig. 7A; “the user uses a selection frame 701 displayed on main screen 203 to designate in a 2D image of a human face ...”; or, “using a pen” tracing and designating a subject to the cut out; specification at page 13, lines 14-22);

determining parallax information of said face image (e.g., step 406: “obtains an angle α formed by a line extending between the subject’s face and one eye assumed at the position of the camera and a line extending between the subject’s face and the other eye assumed at the position of the camera”; see Fig. 6; specification at page 10, lines 13-15) based on a distance between human eyes (specification at page 10, lines 10-16);

creating a three dimensional image by applying said parallax information to said face image (e.g., step 407: “imparts to three dimensional data the parallax information corresponding to angle α ” to create a 3D image including an image for the right eye and that for the left eye; specification at page 10, lines 17-25); and

outputting said three dimensional image (e.g., step 408; specification at page 10, lines 26-28).

Claim 15

Embodiments of the present invention covered by claim 15 are directed to mobile equipment comprising:

a pickup device (e.g., camera 206) picking up an image of a subject;

a parallax information portion (e.g., processor 105) determining parallax information of said subject;

a three dimensional image creation portion creating a three dimensional image by applying said parallax information to said image (e.g., e.g., processor 105: step 407, “imparts to three dimensional data the parallax information corresponding to angle α ” to create a 3D image including an image for the right eye and that for the left eye; specification at page 10, lines 17-25); and

a display unit displaying said three dimensional image (e.g., main screen 203; step S408; specification at page 10, lines 26-28),

wherein said parallax information portion calculates said parallax information based on differences in the brightness between parts of the image (e.g. divide a 2D image into a plurality of blocks and detect each block’s brightness, determine parallax information for each block, at specification, page 12, lines 10-20).

Claim 16

Embodiments of the present invention covered by claim 16 are directed to mobile equipment comprising:

a pickup device (e.g., camera 206) picking up an image of a subject;

a parallax information portion determining parallax information of said subject (e.g., processor 105: step 406, “obtains an angle α formed by a line extending between the subject’s face and one eye assumed at the position of the camera and a line extending between the subject’s face and the other eye assumed at the position of the camera”; see Fig. 6; specification at page 10, lines 13-16);

a three dimensional image creation portion creating a three dimensional image by applying said parallax information to said image (e.g., e.g., processor 105: step 407, “imparts to three dimensional data the parallax information corresponding to angle α ” to create a 3D image including an image for the right eye and that for the left eye; specification at page 10, lines 17-25); and

a display unit displaying said three dimensional image (e.g., main screen 203; step S408; specification at page 10, lines 26-28),

wherein said parallax information portion calculates said parallax information based on the intensity of light reflected from the subject (e.g., detect from intensity of a reflection of the light a distance from the mobile phone to each portion of the subject; present specification at page 12, lines 24-28) and on a distance between human eyes (e.g., the detected distance for each portion of the subject and standard distance between human eyes are used to calculate parallax information, angle α).

Claim 17

Embodiments of the present invention covered by claim 17 are directed to mobile equipment comprising:

a pickup device (e.g., camera 206) picking up a two dimensional image data of a subject;

a three dimensional image creation portion (processor 105) obtaining display data for three dimensional display, the display data including image data for a right eye and for a left eye, wherein said three dimensional image creation portion includes,

a first data process means for generating three dimensional data derived from the two dimensional data (e.g., step S405 - generating a three dimensional model corresponding to each approximate image of a subject in the 2D image based on a texture image pasted on standard face geometry data by parallel projection; as described in the specification at page 8, line 5, to page 10, line 8); and

a second data process means for converting the three dimensional data into the image data for the right eye and the image data for the left eye (e.g., steps S406, S407 - provide the three dimensional data with parallax information, corresponding angle α ; specification at page 10, lines 17-25); and

a display unit (e.g., main screen 204; specification at page 10, lines 26-28) displaying an image for the three dimensional display based on the display data.

Claim 29

Embodiments of the present invention covered by claim 29 are directed to a three dimensional conversion program product causing a computer to execute a three dimensional conversion process (e.g., Fig. 4) comprising the steps of:

receiving an input of a two dimensional image data of a subject (step S401; specification at page 7, lines 2-7);

obtaining display data for three dimensional display, the display data including image data for a right eye and for a left eye, wherein said step of obtaining the display data includes the steps of:

generating three dimensional data derived from the two dimensional data (e.g., step S405; specification at page 8, lines 5-9); and

converting the three dimensional data into the image data for the right eye and the image data for the left eye (e.g., step S407; specification at page 10, lines 8-25); and the process further comprising

outputting the display data (e.g., S408; specification at page 10, lines 26-28).

Claim 23

Claim 23 is directed to further features of claim 17 of a memory for storing a face geometry model (e.g., memory 106 storing a face geometry model of the owner of the mobile phone), wherein said three dimensional image creation portion further includes an extraction means for extracting a human face image data out of the two dimensional image data (step S404, each facial part's two dimensional coordinate is obtained and a face image is cut out of the 2D image), wherein said first data process means generates the three dimensional data from the human face image data based on the face geometry model (e.g., when a face image is cut out of the 2D image, processor projects the extracted each facial part's coordinate on a three dimensional human face model to obtain three dimensional data of the entirety of the face image; specification at page 8, lines 5-9).

Claims 32-35

Claim 32 is directed to further features of claim 7 of a memory for storing a face geometry model (e.g., memory 106 storing a face geometry model of the owner of the mobile phone), wherein said three dimensional image creation portion generates three dimensional data (e.g., processor 105 generates three dimensional data of the entirety of the face image; specification at page 8, lines 5-9) from the human face (face image) based on the face geometry model (“face geometry model”), and converts the three dimensional data into the three dimensional image (e.g., step S407, create a 3D image including an image for the right eye and that for the left eye; specification at page 10, lines 18-25).

Claim 33 is directed to further features of claim 10 of a memory for storing a face geometry model (e.g., memory 106 storing a face geometry model of the owner of the mobile phone), wherein said three dimensional image creation portion generates three dimensional data (e.g., processor 105 generates three dimensional data of the entirety of the face image; specification at page 8, lines 5-9) from the selected subject based on the face geometry model (face geometry model), and converts the three dimensional data into the three dimensional image (e.g., step S407, create a 3D image including an image for the right eye and that for the left eye; specification at page 10, lines 18-25).

Claim 34 is directed to further features of claim 13 of a memory for storing a face geometry model (e.g., memory 106 storing a face geometry model of the owner of the mobile phone), wherein the step of creating a three dimensional image further comprises generating three dimensional data from the human face image (e.g., processor 105 generates three dimensional data of the entirety of the face image; specification at page 8, lines 5-9) based on the

face geometry model (face geometry model), and converting the three dimensional data into the three dimensional image (e.g., step S407, create a 3D image including an image for the right eye and that for the left eye; specification at page 10, lines 18-25).

Claim 35 is directed to further features of claim 16 of a memory for storing a face geometry model (e.g., memory 106 storing a face geometry model of the owner of the mobile phone), wherein said three dimensional image creation portion generates three dimensional data from the image of the subject (e.g., processor 105 generates three dimensional data of the entirety of the face image; specification at page 8, lines 5-9) based on the face geometry model (face geometry model), and converts the three dimensional data into the three dimensional image (e.g., step S407, create a 3D image including an image for the right eye and that for the left eye; specification at page 10, lines 18-25).

Dated: June 28, 2007

Respectfully submitted,

By *Robert W. Downs* # 48, 222
Terrell C. Birch
Registration No.: 19,382
BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Road
Suite 100 East
P.O. Box 747
Falls Church, Virginia 22040-0747
(703) 205-8000
Attorney for Applicant